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# **Relationship of dental practitioners to rural primary care networks**

A/Prof Tony Barnett, Dr Ha Hoang, Dr Jackie Stuart,  
A/Prof Len Crocombe

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Centre of Research Excellence in Primary Oral Health Care

C/- A/Prof Tony Barnett

Centre for Rural Health, the University of Tasmania

Locked Bag 1322, Launceston, Australia

T 61 3 6324 4011

F 61 2 6125 4040

E tony.barnett@utas.edu.au

<http://www.utas.edu.au/rural-health>

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## Section 1: Background

As emphasised in the recent Australia's National Oral Health Plan 2015-2024 <sup>1</sup>, rural and regional residents in Australia have been identified as one of the priority populations who continue to experience poorer oral health than other population groups. Residents in these areas have poorer health outcomes and less access to health care services than people living in major cities <sup>2</sup>. They are also at risk of poorer oral health outcomes <sup>3</sup>, experience higher rates of dental caries than their city counterparts <sup>4</sup> and are more likely than residents of major cities to present to dentists for problems such as pain <sup>5</sup>. There is no single factor that completely explains this however access to dental services is a key factor. Australia has a maldistribution of dental practitioners <sup>6,7</sup>. There are more than three times as many dentists practicing per 100,000 population in major cities (59.5) than in remote/very remote areas (17.9) <sup>6</sup>. The proportions of other types of dental practitioners including dental therapists and prosthetists are also the lowest in remote/very remote areas <sup>6</sup>.

Dental services in Australia are largely provided within the private sector (85%) <sup>8</sup> and public (low cost or fully subsidised) oral health services are only provided for children up to 18 years old, and adults with health care concession cards (HCC) <sup>9</sup>. In 2010, about 50% of all people aged five years and over had some level of private health insurance cover for dental services <sup>10</sup>. In the absence of a dental practice in their own or a nearby community, rural and remote residents' dental needs may be met, in part, by visiting mobile facilities or periodic "fly-in-fly-out" services <sup>11</sup>. Residents may also access a dental practitioner by travelling to a larger population centre though regular attendance can be difficult. This is due to costs associated with travel (which can be many hundreds of kilometres), time off work, juggling the responsibilities associated with caring for dependents and, for those with less than adequate health insurance cover, the fees involved especially when return visits are required for optimal treatment <sup>12</sup>.

Towns in many rural and remote areas in Australia are often widely dispersed and lack the population base to warrant a full-time dentist. In the absence of a resident dentist, patients with an acute oral health problem may present to other primary care providers located in general medical practices <sup>13</sup>, hospital emergency departments (ED) <sup>13-15</sup>, pharmacies <sup>16</sup> or to an Aboriginal Health Centre <sup>8, 17</sup>. Non-dental practitioners are usually able to provide only temporary relief of symptoms and referral rather than definitive treatment <sup>13, 16, 18</sup>.

Presentations to an ED may result in admission for treatment, especially where there is concern that the patients' condition may deteriorate. Over 2012-2013, dental conditions accounted for 63,000 avoidable hospital admissions, the third highest reason for acute preventable hospital admissions in Australia. These admission rates were higher in non-metropolitan areas and highest for very remote areas <sup>19</sup>. This raises the concern that people in these areas may have been hospitalised due to the lack of adequate and timely preventive dental care in community settings.

Consequently, there are strong imperatives to investigate ways in which these communities can be provided with better oral health services in realistic and cost effective ways that draw upon opportunities afforded by recent health and primary health care reform initiatives. Rural communities are served by a range of health care professionals, often working in an extended capacity as a consequence of workforce shortages and limited range of health care professionals in these areas. Such practitioners provide a network of health care professionals serving rural communities. Stronger links and cooperation between rural health care practitioners and dentists/oral health professionals may improve service provision such that interventions are both timely, effective and result in appropriate follow-up or referral.

## Methods

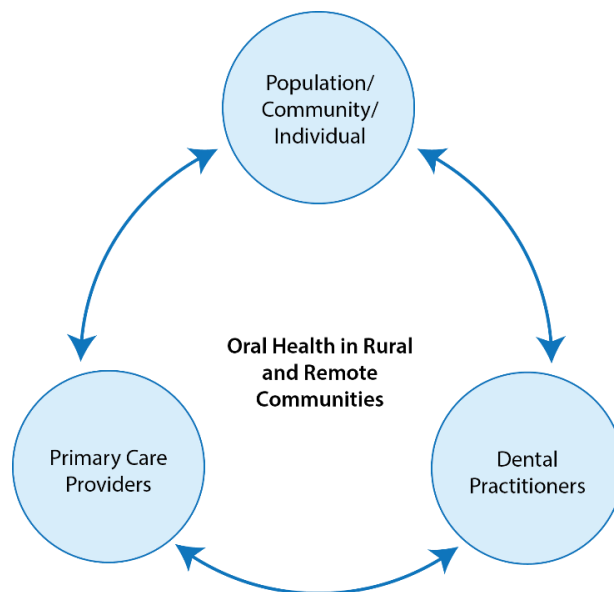
### AIMS

Residents of rural and remote communities have poorer oral health and less access to oral health services than people living in major cities. The populations of many rural and remote centres are not large enough to support a resident dentist and, in the absence of community oral health services, rural residents may present to non-dental primary care providers with oral health problems.

The aim of this study was to describe strategies that can be used by primary care practitioners to improve the provision of oral health services to rural and remote communities. The specific objectives were to (i) map oral health services practices in rural communities across primary care providers (ii) assess the extent to which oral health problems impact on service provision by primary health care providers; (iii) assess the extent to which primary care networks could be more effectively utilised to improve the provision of oral health services to rural communities and to identify what interventions/strategies were most likely to be effective.

### CONCEPTUAL FRAMEWORK

The focus of this study was to examine oral health in rural and remote communities primarily from the perspective of non-dental primary care practitioners who lived and worked in these communities. Other perspectives or inputs were also regarded as important to the design of the study. Reports that described rural oral health from an individual, community and population perspective provided a key source of information and, to provide specialist input, the views of dental practitioners who had previously worked in some of the communities sampled in this study were also obtained. These three sources of information and the connection between primary care providers, the rural resident (patient or client) and dental services was developed as the conceptual framework for the study. This is illustrated in Figure 1.



*Figure 1: Conceptual framework.*

The conceptual framework describes the hypothesised relationship between the individual, the primary care providers within their community and external or visiting dental services. Our proposition was that stronger connections between these areas, and especially between resident primary care providers and non-resident dental practitioners and oral health services, could contribute to community oral health gains. The triangulation of data collection procedures provided additional rigor to the study, allowed us to identify differences in perceptions and to better assess those strategies suggested by primary care participants to improve oral health.

## SETTINGS

Descriptive case studies were conducted with rural communities across three Australian states. These communities were identified by the Chief Dental Officer of each state and met the following study inclusion criteria,

- > They were classified as RA 2, 3, 4 or 5 by the Australian Standard Geographical Classification Remoteness Areas (ASGC RAs), i.e. non-metropolitan areas
- > Oral health care was a significant problem
- > There was no resident dentist/dental surgery, at least one general medical (GP) practice, a health care facility and a pharmacy in the community.

## RECRUITMENT

Data were collected using semi-structured interviews. Participants were recruited using both purposive and snowball sampling strategies<sup>20</sup>. Primary care providers were recruited through the managers of the GP (medical) practice, pharmacy, hospital and other health care services of these communities. The managers were asked to identify staff who had been involved in providing advice to a patient with an oral health problem and forward to them a study information package that included an invitation to contact the research team should they be willing to participate in a semi-structured interview. All identified and invited participants accepted to participate in the interviews. Participants had a choice of having either an individual interview or a group interview. Group interviews involved participants from different health care services and professions.

In one state, dental practitioners were also recruited. Since both primary and dental care providers had been involved in providing oral health care advice and treatment to the rural communities studied, viewpoints and experiences of primary care providers were triangulated with those of dental care providers. Dental care providers included dentists, dental therapists and dental assistants. These people were identified by the non-dental participants and had previously provided dental services to patients from the communities sampled, and were subsequently recruited through a snowball sampling technique.

## DATA COLLECTION

The interview guide was developed from the results of a literature review<sup>18</sup> (Appendix 1) and discussion amongst the team. It was then piloted with a rural dentist and a pharmacist. Some questions were reworded to make them clearer and some sub-questions added to the interview guide as a result of the pilot. The guide included items on: the profile of the practice; participants' professional background; information on the number of people who requested oral health advice or treatment; treatment/advice provided and their level of confidence with this; the communication the dental and non-dental health providers had with each other, and their views on strategies that could improve oral health in their community. The interviews were conducted at the participants' workplaces by one or more members of the research team between October 2013 and May 2016. Recruitment continued until data saturation<sup>21</sup> was observed in the concurrent data analyses. The individual and group interviews lasted from 30 to 60 minutes. Field notes were also taken by members of the

research team during the site visits and from each interview. These provided additional context to the study. They were reviewed and discussed at the end of each community field visit and also referred to during data analysis.

## DATA ANALYSIS

Interviews were audio recorded and transcribed verbatim into Microsoft Word and then cross checked by two members of the team against audio recordings for errors. Each participant was assigned a numerical code to maintain confidentiality. Narrative data were then imported into QSR - NVivo v10.0 software<sup>22</sup> and analysed using thematic analysis<sup>23</sup> to identify key patterns, trends in the data and recurring themes. Two members of the research team conducted the analysis independently which involved coding the transcripts, categorising the codes and the generation of themes. The data were analysed using a combination of *a-priori* ideas from the literature review built into the interview guide and the themes that emerged from the data. The results were compared and discussed at regular meetings involving all researchers until consensus was reached. Quantitative data were subject to descriptive analysis using SPSSv20.

## ETHICS CONSIDERATIONS

Ethics approval for the study was granted by the Human Research Ethics Committee (Tasmania) Network (H13217).



## Results

### CHARACTERISTICS OF STUDY SITES AND PARTICIPANTS

Of the communities identified by the Chief Dental Officers, 14 out of 17 met the study criteria and were included in the study: three in Tasmania (TAS), three in South Australia (SA) and 11 in Queensland (QLD). Table 1 (Appendix 2) provides a snapshot of some of the characteristics of the communities studied. Island communities (such as one of the Tasmanian communities studied) and those subject to seasonal flooding face considerable cost and scheduling challenges that may not be reflected in the 'as the crow flies' distance to the nearest dental surgery as shown in Table 1.

The characteristics of the 105 primary care and 12 dental providers who participated in the study are shown in Tables 2 (Appendix 3) and 3 (Appendix 4).

### THEMES AND SUBTHEMES

Six main themes (Table 4, Appendix 5) emerged from the interview data and are illustrated in Figure 2 (purple).

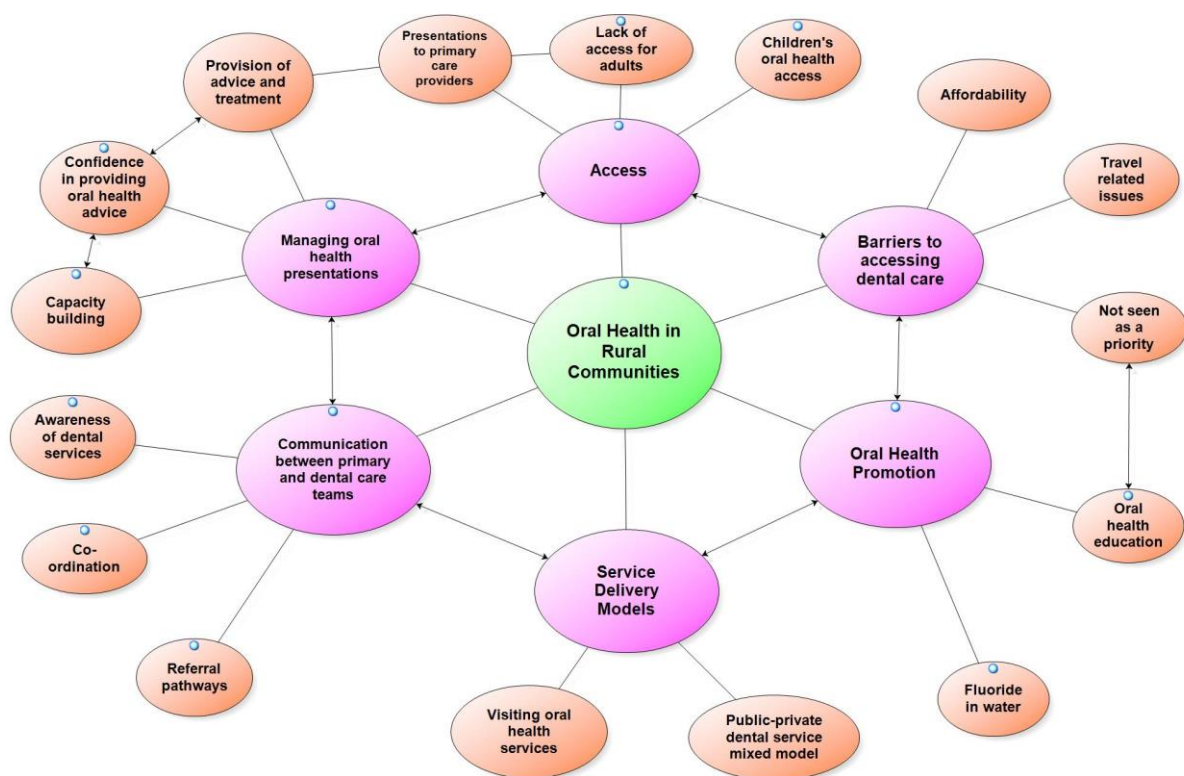


Figure 2: Thematic schema representing primary and dental care providers' perspectives of rural oral health.

#### The state of oral health in rural communities/access

##### Access to adult oral health services

Access to adult oral health services was very limited in the three states studied.

The obvious one is there is no adult dentist in [name of community 3], so if we are talking about our community that is the main one ... (Pharmacist 9)  
... the kids have a dental van and stuff like that but there is nothing much for adults there. (Director of Nursing 12)

Other participants also commented,

Access to oral health would be one thing. That is a big issue here. (GP 1)  
... the main thing is the access, which is the same for everything. (Pharmacist 7)

The result of this limited access to adult oral health services was commented on by the community primary care providers, including GPs. Having seen patients with oral health problems, GPs could observe the oral health status of their communities. Nine out of 30 GPs described the oral health status of their communities as “so bad”, “very poor” “never expected” and even “shocking”.

I mean this town has shocking, shocking dental care ... I’ve never seen teeth so badly decayed ... (GP 10)

There are some quite attractive young men and women who’ve got shocking teeth, you know, so just for lack of care. (GP19)

In rural communities where there may be concentrations of low socioeconomic and Indigenous people, oral health is an issue for everyone.

Everyone has poor oral health as my demographic are low socioeconomic people and Indigenous. (Allied Health Worker 3)

You would be lucky to find a person in [Name of the rural community] who has a good set of teeth. (Nurse 8)

### **Access to children’s oral health services**

In one state, children’s access to dental care in the three rural communities studied was observed by non-dental health providers as being “very good” and the service “well organised”.

There is a children’s dental service which is very good and my understanding is that most school-age children who need dental care get seen pretty quickly, that works quite well. (Pharmacist 10)

Dental therapists were the main dental providers for children,

The dental therapist comes on regular occasions and they report that they have good coverage of all the children. (Director of Nursing 3)

In the communities studied in the other two states, children’s access to dental care services was described as “limited” and “sporadic”.

### **Presentations to primary care providers**

All non-dental primary care provider participants reported that they had seen patients with oral health problems though there was variation in the frequency of presentations across each community and practice site. GP practices reported seeing people with oral health problems from “everyday” to “one per month”. Types of oral health presentations include toothache, dental infections, abscesses and trauma.

... the guy that just walked out and the one before him just walked out with a dental problem and probably three others came in today ... 4-5 per week, close to 20 a month ... (GP 10)

... mostly what we see is dental abscesses, mouth ulcers, sometimes it is dentures ... and of course extreme pain and tooth abscesses ... (GP 8)

Rural residents also presented to local hospitals with oral health problems. Hospital staff reported seeing patients with oral health presentations as frequently as “very common”, “four in a month” and “six per month”.

... acute pain or loss of teeth through a fight, or they’ve been hanging onto rotten teeth for a long, long time and they can’t chew properly, it’s too painful or their teeth are starting to fall out and there is heavy decay, there is gum disease. (Allied Health Worker 2)

... we see a lot of adults and children usually with pain, abscesses or broken teeth. They come to us because there is not a dentist and they need pain relief or antibiotics. (Nurse 17)

Pharmacies are the other health service that people in the rural communities presented to for oral health advice. Pharmacists reported seeing people with oral health problems from “10 per month” to “5-10 per week”. The advice or problems people presented to the pharmacists were,

Generally product information, mouth ulcers, oral hygiene products, diagnosis, they have got these sores, trying to work out what they are, how to treat them. (Pharmacist 2)

## Oral health promotion

### Oral health education

Having seen patients with oral health problems, participants observed a lack of oral health knowledge in the community especially among parents.

..... also most families don’t know that they should be actually cleaning the child’s teeth after them ‘til about the age eight and ... half of them might not even have toothbrushes. (Nurse 18)

Both primary care and dental participants emphasised the importance of educating people from an early age in schools and the community about oral health, “regular check-ups” and preventative dental care.

A lot of the people out there don’t know the basics. Teach them that and a lot of the bigger dental problems go away. (Dentist 2)

Participants raised the importance of community and school-based oral health promotion,

Oral health education for the public should be better. Mum and dad don’t brush their teeth so the kids don’t do it either. (GP 2)

I really feel that having someone locally doing preventative health advice, especially with the children...getting the paste on their teeth on a regular basis I think would make a big difference, just educate them. (GP 7)

Some GPs saw opportunities to provide preventative advice to patients when they came for medical appointments.

I tell people routinely, but it is part of the whole general holistic approach in general medicine (GP 19)

### Fluoride in water

Some participants recognised having water fluoridation in the community is an important step in improving a community’s oral health.

.... see most of the people here would only drink tank water so what I was actually asking was is our water fluoridated? Maybe that impacts on our teeth being worse? (Nurse 18)

... it was about the fluoride in the water, you had to have the fluoride and you had to have your milk and it's all about your teeth. (Nurse 6)

A doctor also recognised the importance of having enough fluoride for the teeth,

Checking that the fluoride is enough, a lot of our patients use tank water and they are not getting possibly the fluoride they need (GP 7)

## Service Delivery Models

### Public-private mix model

Private adult patients can be disadvantaged because services in remote locations are sometimes only available to people with a concession card.

... sometimes they say to me they have been saving money just to go off the island for dental issues because they do not have a health care card or don't qualify to see the government dentist here ... it is frustrating because when there is a government dentist here, they said, sorry, we can't see this gentleman because he doesn't qualify for it ... (GP 2)

In order to improve access to oral health services for their communities, some primary care providers suggested having a dentist to look after both public and private patients in order to achieve financial viability for the dental practitioner.

We need a dentist for the community. I'd like to see the government to be able to help so that we have something for both public and private usage. We realise that there is probably not enough work for a full time dentist to work only privately or only publicly, but there would be enough between both public and private. (GP Practice manager 8)

In the absence of resident dentists in rural communities, primary care providers suggested a public-private mix model which would allow a dentist work part-time for the public health service whilst retaining private practice privileges to augment their income. One dentist, who had previously worked with such an arrangement recalled,

That's not a bad model to work on, to give the dentists the rights to private practice to work out of the same clinic. (Dentist 3)

### Visiting oral health services

When there is not a local dentist in the community, the community has to rely on visiting services. Some primary care providers expressed the view that there should be more regular visiting services to better serve people in their community.

We need a [visiting] dentist more often. (Pharmacist 7)

... if we could get an Oral Health Van here, we had had it visit in the past and I found it very, very good for our patients ... it would be handy if we had a dental van that would visit us on a regular basis, even if it came once in a quarter, where with any dental issues we have we could refer them to the van that comes into the community on a quarterly basis. (GP Receptionist 3)

We did have the state oral health dental van for children and a lot of the community got quite excited to think that was going to be available for the broader community but it was really just for the school program and that was quite good but having that type of service accessible for the whole community (Director of Nursing 4)

In one state, the visiting dental services provided oral health services for everyone and not just public patients or people with health care cards.

It is a really good thing. They are great. They see everyone, not only card holders and emergencies also. (Nurse 20)

The service was active in letting local people know that they were coming to the community by contacting the hospital and putting up notices in the pharmacy and the media.

They put up notices in the pharmacy window and shop windows and advertised in the 'Community Forum Magazine' They were very busy and we had a few patients come to the pharmacy and I gave them the 1800-number on the shop window. There was a waiting list and not everyone gets seen and then there is a long wait till they come back again. People are very happy and are starting to rely on the truck. It is free and they like that too. (Pharmacist 19)

They ring to notify us of when they are coming. The Q Coal truck send us posters and stuff to let us know when they are coming about a month prior to them coming. As soon as the community is aware that the dentist will be in town they ring and we give them a number and then they ring and book for the Q Coal van or for the dentist here they get an appointment. Otherwise they might speak to the admin ladies who might know when both lots of dentists are coming. (Nurse 21)

The primary care providers in this community started seeing the positive impact of having more regular visiting dental services on their community.

... we hardly see anybody with dental problems here [because] we have the visiting dentists from [Name of the regional centre] and the Q Coal van. (Nurse 20)

They come in for a couple of weeks twice a year and then they go. So most of the dental needs of the community are being met, especially now that there are fewer people in the local community. (Nurse 21)

## Managing oral health presentations

### Provision of advice and treatment

The majority of primary care participants provided prescriptions for antibiotics and short-term pain relief; and advised patients to see a dentist.

I administer pain relief, antibiotics and referral on to dentist or doctor (Director of Nursing 6)

... if I suspect infection I will give antibiotics ... As far as pain goes I will give them a short-term oral pain relief ... but I always give advice to go to the dentist... (GP 13)

I recommend people see a dentist or see a doctor for an oral health problem (Pharmacist 13)

Some GPs also reported providing education on oral hygiene and preventative dental care.

I mostly provide pain relief, provide antibiotics, provide advice in personal dental care, I'm very hot on that. (GP 10)

... I look and you see on the gum some ulcers there, some, what you consider lineal ulcers there, so what I usually tell them is, to make sure they brush their teeth at least twice a day and as a follow up with those lesions you see affected, you use a saltwater gargle or you can also use Listerine mouthwash, or any of those antiseptic mouthwashes, they are very good to

use those to swish and gargle. And I advise on food too, to avoid very acidic and sugary drinks, which most of the time you see as inevitable, reduce the amount of sugar consumption, refined sugar, eat more fruits and vegetables. ... cut down on smoking and alcohol consumption also, lifestyle modification, oral hygiene techniques, that is what I am giving most of the time. (GP 11)

Other treatments include dental block injections and tooth extractions.

Occasionally I pull people's teeth here but I'd rather not do it, but if it's that obvious they're hanging out, I've got a pair of Ashley canine veterinary dental things I use which are just as good, and I just given them a bit of a wipe over and pull them out. So I've done that with people before, occasionally I do that. (GP 19)

### **Confidence in providing oral health care advice**

More than one half (18/30) of the GP participants were confident, within their scope of practice, in providing oral health care advice and treatment.

Yes pretty confident with basic dental emergency relief. (GP 4)

However, some GPs acknowledged that they were not always confident and lacked training in the area,

... I start off ... 'sorry, I'm not a dentist' and all I know is there are supposed to be 32 teeth in the mouth and that is pretty much all I know. I don't have the training, absolutely not. (GP 6)

I must admit, I'm not very knowledgeable; I just think, 'they need painkillers, antibiotics and a dentist'. I certainly don't really know much else, you know? (GP 12)

Some other primary care providers expressed that they were confident in providing oral health advice to their community within their scope of practice; but some were not confident at all.

I'm confident enough that I can determine what is and is not within my scope of practice and what I'm comfortable dealing with. (Pharmacist 6)

Well we are actually not that confident at all. The more information we have the better. It's more the doctors because the doctors will review them and decide what treatments need to be done. Nursing we can refer to the doctors but really none of us are really qualified to do more than look and we don't know really what we are looking for. (Nurse 20)

### **Capacity building**

Regardless of the level of confidence in providing oral health advice, the majority of primary care providers were interested in oral health training and identified a need for additional training in dental care on topics such as "major trauma interventions" and more "practical advice".

Something could be done to enhance our knowledge with respect at least the primary care aspect of it, I would be interested in that, to know more what to do for the patients when they come in here. (GP 4)

... we don't really learn any dentistry at all ... it's still part of the body and doctors just kind of bypass it. (GP 20)

... I suppose we have to do what is best for our patients and if we can in any way up-skill, upgrade our scope of practice in terms of dental care delivery, I'm happy to consider that. (GP 8)

Being busy clinicians in a small town, most GPs preferred flexible education and training such as online short courses and short workshops.

... the problem is I went to this course, had a great time, bought the kit, came back, never used it and then I'll forget it! ...it has to be regular, annual or semi-annual. (GP 19)

Not only doctors but also nursing staff recognise the importance of oral health education and training for aged care staff.

I think training needs are really important, especially down in aged care, that people need to, that oral care is really important, the education of cleaning the dentures, the education of cleaning the patient's own teeth, the gum protection...(Nurse 5)

The pharmacist participants were interested in oral health training and expressed that training would be best if it were offered online and counted towards their continuous professional development (CPD).

I would be very interested in further education in dental emergency stuff like how to put a tooth back in when it has been knocked out. (Pharmacist 19)

Because we have to do our continuous professional development, I am always interested in things to do; for me being here online is probably best. (Pharmacist 8)

## Barriers to accessing dental care

### Travel related issues

Many participants were conscious of the difficulty some patients faced when they were advised to see a dentist that necessitated travel to a regional centre, acknowledging that this was "expensive" and given that travel could be "200km each way" and on occasion "almost impossible".

... they don't have a lot of money and a lot of them don't have a vehicle. They will put up with the pain rather than drive for 2 hours and spend \$400 on a tooth. (GP 13)

... even though there may be a service in [regional town] it might be a low income family, it's driving there and driving back. It's expensive to do that. (Nurse 8)

I think the major issue for most of our patients is cost issues flying off the island ... \$500 across the waters so it is not easy for most of our patients (GP 1)

For residents without their own car and especially for older residents who had to rely on their family, friends and in some cases health care providers for transport, travel to a regional centre could be more difficult when public transport to that place was not available.

The other day I had a patient with big dental problems and other health issues so I took her up to the hospital myself because she had no transport and that is part of my job. (Aboriginal Health Worker 1)

... there is no public transport to either of those places. (Nurse 6)

... so if they don't have anybody to take them there is really nothing ... (Nurse 9)

In addition, there are also other issues such as childcare, airfares and accommodation when patients have to travel for dental care.



Transportation is a big thing. If they need to go to the dentist that is all day to get there and back so they often need to stay overnight which is really difficult to do it they have families and young children that need them. (Nurse 19)

... it is not just the airfares, you have to get accommodation; these are the sort of things that fret a lot of people and have them going on longer and longer perhaps with pain in the hopes that somebody will come that they will see, so they don't have to fly off. (Allied Health Worker 2)

### **Affordability**

Affordability of dental services is one of the barriers which can prevent people, especially those with lower socioeconomic backgrounds, from accessing dental care.

Access and knowing the cost and it is just too much for them, we've got a lot of lower socioeconomic people here and they just don't have stable income. (GP 2)

It costs a ridiculous amount to go to the dentist every six months for a check-up and low socio-economic people who don't have a health care card simply can't afford to go to the dentist. (Aboriginal Health Worker 3)

... the other thing that really is a big hindrance for oral health is the cost of going to the dentist, so a lot of people aren't really going ... willing or able maybe ... to be able to do that. (GP 20)

People who were low income earners but without health care cards, could not access public oral health services and were observed by some health care providers as the most disadvantaged.

Low income earners are the most disadvantaged and highly at risk. They leave it till it is a major problem because they can't afford to go every six months for check-ups. The hospital system works really well, and with a health care card, the treatment is great but if you don't have that card .... (Aboriginal Health Worker 2)

Not knowing the cost before the treatment would prevent patients from seeing a dental practitioner. One GP suggested that a way to overcome this might be,

If a cost is upfront, we can actually say, it will cost you that much out of pocket ... where if they go there, rock up and get a bill for \$200 they come back and they say I am not ever going back there again ... (GP 15)

### **Not seen as a priority**

Additionally, participants expressed concern that patients would not go to see a dentist for treatment as advised because oral health was a low priority. They also believed that some parents also did not see their children's oral health as a priority.

Dental care is not a priority in rural people's lives – at all ...there are some quite attractive young men and women who've got shocking teeth ... so just for lack of care ... but again, its parental priority. (GP 19)

They had a whole day for children and no-one came down. The parents don't bother bringing the kids down to the dentist. (GP 4)

... but they [patients] don't go and they make all sorts of excuses and they say I couldn't make the appointment, I don't have the money. It is a low priority once the pain is gone ... (GP 1)

Fear of the dentist was another reason for not utilizing the dental services.



They are also scared and won't go for this reason too. (Practice manager 4)

The kids in schools need to be seen a lot more often than they are otherwise they are getting to the point where they are getting 8 teeth pulled. That terrorises them and when they are older they won't go back. Fear is a major thing against dentistry also. (Aboriginal Health Worker 1)

Delay or failure to obtain follow-up treatment with a dentist meant that primary care provider participants saw the same patient a number of times.

... the pain goes away and they don't go to the dentist and then they come back with chronic infection, and I say but I told you to go to the dentist ... lots of repeat clients. (GP 7)

Dental problems become medical problems if not treated and need to admit them to hospitals. (GP 3)

Communication between primary and dental care teams

### **Awareness of dental services**

A majority of the primary care providers interviewed had a little awareness of the local dental services in their community. One doctor was not sure about the existence of the children dental clinic which was just across the road from their practice.

I think there is one [dental surgery] in town here, I don't know anymore, I have not spoken to them, I think there is one dentist here, I think there is a dental clinic across the road but I don't know to be honest. (GP 12)

It was common that the GPs and other primary care providers had little information about visiting dental services, even when the service was in the community and providing services to patients.

There is a van up there at the moment I've noticed what does that do?  
Nobody tells anybody that it's in town ... why don't they advertise? (GP 2)

I do believe but I'm not sure there's a government dentist that comes infrequently. (Pharmacist 7)

Another GP expressed,

There are some times when the dental technician comes to the island but we don't even know about it, and so I wonder if their time is being used well, because if we have patients who need dental technician support and we don't know they are coming, it's pointless, it's a waste of services. (GP 1)

The director of nursing of one community explained that if she was informed about the services she would notify all her staff and that would change their advice to the patients:

They [visiting dental practitioners] could be here in town and we don't even know they are here. I think it is because we have all these siloes of people reporting to all different places now. There is not really that great network where they might tell us when they are visiting or what services are being provided this week. I could send the information out to all the staff in one email if I had the information given to me, then we wouldn't send a patient to the dentist because we would know they are not here. (Director of Nursing 19)

The visiting dental service participants mentioned about the lack of awareness of the primary care providers in the community that they visited.

In [Name of the rural community] they say “oh who are you?” Unless you have been there before and seen the doctors before they have no idea who you are or what you are doing there. (Dental Assistant 2)

One dentist suggested a way to improve the situation,

The onus would be on the dentist to go around and meet everyone [doctors and pharmacists] and say look here are my timetables, this is when I will be visiting. To say “if anyone comes your way to let them know to see me on these particular days of the weeks” (Dentist 5)

One dental care provider suggested that each community should have a contact person for all oral health related issues.

The community need a contact person for their oral health questions and because I have been around for so long they ring me and trust me to know who to contact. (Dental Therapist)

### **Co-ordination**

The majority of the primary care participants expressed that they rarely contacted either the visiting or regional dental practitioners. Some GPs commented on the minimal co-ordination between doctors and dentists.

... to be honest the professional interaction co-ordination between me and most dentists, as a GP and the dentist is nothing. (GP 4)

Another GP also reported that,

We don't really have an ongoing relationship with the dentist, it seems like we ship them [patients] one way. (GP 3)

One visiting dentist also observed the lack of the professional relationships between dental and primary care providers.

We have no professional relationships with the doctors. None what so ever (Dentist 6)

In contrast, the three other dentists interviewed reported that they did communicate with non-dental care providers. A dentist who had previously serviced one of the communities stated,

Yes I introduced myself to the pharmacist and I knew the doctors from the hospital. I didn't actually meet them all in person but just communicated about patients with various diseases. (Dentist 4)

However, if a GP has an opportunity to spend a day with a dentist, they can learn and establish a relationship with the dentist.

Practice manager ... she sent me down to [Name of the dentist]'s practice down at the Launceston clinic. I spent a day there to have a look at what they did ... It was a really helpful day and since then the receptionist has been talking to me. If I go in they will probably be happy to teach me more. And you know them and because you have a friendly relationship I can say OK, I am flicking them your way. (GP 3)

If a relationship exists between the two professions, one doctor said sometimes he consulted his dentist friend for advice,

I've got a dentist friend and when I run into [him], I go “Oh, can I ask you something?” (GP 2)

An example was given of the co-operation between a visiting dental team and the local primary care providers that resulted in more positive outcomes for Indigenous patients and more effective utilisation of the visiting service.

In some of our communities, particularly the Indigenous communities, we have a lot of “fail to attend”. The rate per visit might be that we have 16 “fail to attend”. Our worst example was [Name of the place] and so we worked very closely with the DoN and said that we needed to promote the importance of the service and obviously that those people on the list need to come in, and if they can’t make it then making sure they ring up and cancel that appointment. We have seen those numbers drastically decrease by doing that. (Manager of the mobile dental unit)

## **Referral pathways**

Primary care providers commonly referred patients with oral health problems to a dentist. However, many of the primary care provider participants raised the issue of not knowing who to contact when referring patients.

I don’t have any business cards or addresses, the guy [dentist] that does come, comes from Melbourne so I don’t have any contacts from Tassie, but it would be helpful if we had some contacts. At least we could offer people this person or that person. (GP Practice Manager 6)

Knowing where to refer to ... being able to have a name and a number so that if somebody comes in ... here you are, you can follow this up yourself or here, I will help you with the phone call. (Allied Health Worker 4)

A pharmacist suggested a way to open a referral pathway between primary care providers and dentists,

It would be helpful if dentists who have room for new patients made contact with nearby rural pharmacies and medical practices to inform them and leave business cards. (Pharmacist 9)

There was a lack of a clear referral pathway between primary care providers especially GPs and dentists. GP participants described the communication as “one way”, “nothing comes back”, and “[we] never get feedback”.

They don’t usually write back to us; we send them one way and nothing comes back, so they are not like our pen pals at the eye hospital. This sort of just goes one way and if we see the patient next time we go ‘How did that go?’ and they go ‘oh, they pulled out my tooth’ and we go ‘alright, is that what happened?’ (GP 3)

There is no follow up there, most of the time the dentist does not really send you anything back. To be honest there have not been any measure of professional interaction, because if they send me some feedback about the patient – usually I do when I refer patients you get more feedback but I don’t get that from them [dentists]. (GP 4)

Nursing staff as well as GPs raised the need for feedback from dentists for patients who had been referred to a dentist,

... it is fairly difficult to get follow up information, the private ones [dentists] seem to be better, but because it’s not a personal one, the government service, it’s difficult to get information back about follow up care. That would be appreciated, absolutely. What’s actually been done? What the follow up is? Anything to watch for? (Director of Nursing 11)

## Discussion

### RURAL ORAL HEALTH

The first objective of this project was to map oral health services practices in rural communities across primary care providers and assess the extent to which oral health problems impact on service provision by primary health care providers. The results of the interviews with 105 primary care providers in 14 rural and remote communities across QLD, SA and TAS showed that residents of the communities sampled did present to primary care providers (GPs, nurses, allied health care providers) with a range of oral health problems including toothache, dental infections, abscesses and trauma. Frequencies varied from “everyday”, “very common” to “10 per month”. Primary care providers also raised their concerns on the prevalence of poor oral hygiene in their communities. Management by primary care providers commonly included short-term pain relief, antibiotics (where an infection was present), advice that the patient see a dentist and if required, hospitalisation. This is consistent with the literature<sup>11,13,15</sup> suggesting that medical doctors could only provide temporary treatment for dental problems. Overall, non-dental care providers were reasonably confident in providing oral health advice/treatment within their limited scope of practice. Most were keen to learn more about basic dental skills, acknowledging that this was often a neglected area in undergraduate training<sup>24-26</sup>. The regular inclusion of oral health topics in continuing education/professional development<sup>27</sup> and staff induction programs may be particularly relevant for those working in rural and remote areas. Primary care providers raised the concern of re-presentation associated with patients who typically did not follow-up with the dentist and cited the relatively low priority given to oral health, cost and travel as major barriers to attendance for patients. This is reflected by recent research<sup>28</sup> indicating that the rate of the potentially preventable hospitalisations for oral health related conditions was greatest in remote areas (10.09 per 1000 population), and lowest in highly accessible areas (2.69 per 1000)<sup>28</sup>. Providing transport options for rural patients would improve access to public and private dentists located in larger population centres. However, in the current climate of State and Federal budget cuts, finding funds to support this could be a challenge.

### COMMUNICATION BETWEEN PRIMARY CARE AND DENTAL CARE PROVIDERS

The second objective of this project was to assess the extent to which primary care networks could be more effectively utilised to improve the provision of oral health services to rural communities. The study results indicated that little communication occurred between non-dental primary care providers and visiting or regional dental practitioners. Although patients were often referred to a dental service, knowledge about how the system worked and lack of feedback was the cause of some frustration amongst participants, especially when they observed the same patients making repeat presentations. In contrast to the non-dental participant experience, some dentist participants reported that they did communicate with doctors in these rural areas to some extent. A similar finding was reported from a European study<sup>29</sup> which found that the dentists sampled rated their relationship with doctors as good or excellent whilst the doctors rated their relationships with the dentists as non-existent. This suggests that more effective mechanisms could be established to develop a shared understanding of what needs to be communicated and how best to do this in ways that support a more collaborative and holistic approach to oral health care<sup>30</sup>. Strategies suggested were,

- > Regular face to face meetings between the visiting/regional dental practitioners and rural/local primary care providers
- > Circulating the timetables of the visiting dental practitioners to the primary care

providers prior to their visit to the communities

- > Making the contact details of the nearby dental clinics available to the community primary care providers.

Establishing and maintaining effective communication and referral pathways between primary care providers, dental practitioners and the local community would help build confidence in how oral health problems can be more effectively managed and, most importantly, prevented<sup>31</sup>. Better oral health training in basic and preventative dental skills for non-dental care providers would facilitate better communication and referral pathways between non-dental and dental care providers. This would help non-dental care providers better deal with the oral health problems of rural patients before they become major medical problems. There is also a role for tele-dentistry which could facilitate more effective communication between health care providers, improve access to preventative dental care and tele-consultation with dental practitioners for rural and remote patients<sup>32</sup>. These alternative models could help reduce the cost and burden of travel to a regional centre to access dental care. Consequently, this would reduce unnecessary hospitalisations. Better communication and stronger collaborations between mainstream and oral health services may provide additional impetus to reduce the discontinuity/disruptions to oral health service provision and help reduce the frequency of problem presentations.

## STRATEGIES TO IMPROVE RURAL ORAL HEALTH

The third objective and also the overall aim of this project was to describe strategies that can be used by primary care practitioners to improve the provision of oral health services to rural and remote communities. In the current study, participants detailed a number of strategies that could contribute to better oral health care in their communities. A number of these proposed strategies are consistent with the National Oral Health Plan 2015-2024<sup>1</sup>, a policy document that also emphasises the need for oral health promotion, collaboration between health professionals and building the capacity of the non-oral health workforce to support clients with their oral health.

### Preventative oral health strategies

Participants emphasised the importance of oral health promotion and illness prevention. This included water fluoridation, a cost effective, equitable public health intervention, shown to reduce dental caries across the population<sup>33</sup>. Upstream, preventive strategies were seen as critical to improving the oral health status of these communities and the most effective way to reduce problem presentations downstream. Oral health promotion and education might be delivered by existing non-dental primary care providers in the community such as community health nurses, GPs and pharmacists.

### Building the capacity of rural primary care practitioners

Primary care participants recognised the need to build their capacity and confidence to better manage oral health presentations in order that they can deliver better outcomes to those patients presenting at their clinics. This can be achieved through participation in regular short workshops for practical skill training in dental emergencies<sup>27, 34</sup> and undertaking training modules and accessing practice guidelines such as those available through The Royal Australian College of General Practitioners, the Australian College of Rural and Remote Medicine and the Royal Flying Doctor Service. These short courses/workshops could be used as part of the induction process for GPs and others working in more isolated practice settings.

With proper training in oral health, non-dental care providers could also play a role in educating and promoting oral health to their communities. For example, GPs could educate patients on oral hygiene when they come for medical appointments. Pharmacists could have

oral health posters displayed in their stores and provide oral health information to patients <sup>16</sup>. Community health nurses could play a stronger role in educating children and parents on oral health care during clinic visits and in schools. Neumann and colleagues <sup>35</sup> demonstrated that rural maternal and child health nurses could deliver an oral health intervention promoting early exposure to fluoridated toothpaste and distributing an oral health starter kit to parents of pre-school children.

### Alternative service models

Moreover, more regular public visiting dental services would better serve public patients, the mixed private-public income model for dentists may also improve services to private patients (non-concession card holders). The public and private mix model could be developed to enable dentists to provide services to both rural public and private patients in a financially viable and ethical way. Where population size justifies, establishing on-site dental clinics in those communities not serviced by a private dental practice. These could be maintained and serviced by a resident dental practitioner (an oral health therapist for example) who would have both a clinical, liaison and oral health promotion role, supporting regular both visits by both public and private dentists.

### Encouraging recruitment and retention of dentist professionals in rural and remote areas

Other supports to dental practitioners practicing in rural areas should be considered. Particularly, greater mentorship and other support should be provided to new graduates who locate and practice in more remote communities where such infrastructure support is lacking. New dental graduates could be provided with a 'rural/remote' rotation as part of their graduate year (or first year of metropolitan employment). This could be facilitated in both the public and private sectors. Furthermore, a 'transition to retirement' scheme could be developed for (metropolitan) dentists who plan to cease work though would like to 'give back' to the community through the provision of dental services to rural communities on a part-time or locum basis.

## A REVIEW OF THE CONCEPTUAL FRAMEWORK

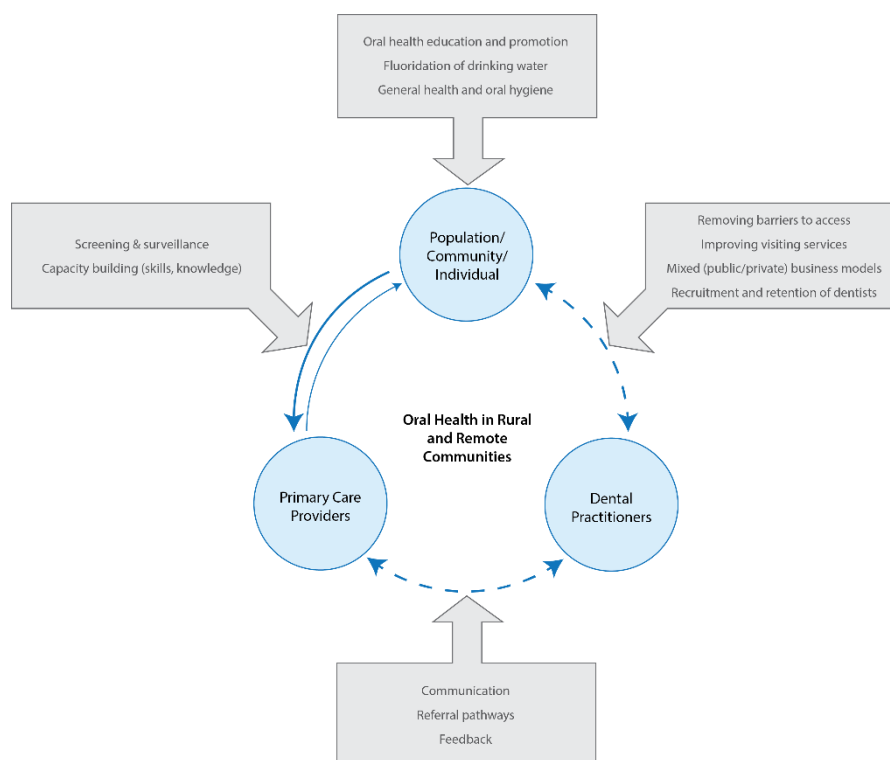


Figure 3: Conceptual framework review

The focus of this study was to examine oral health in rural and remote communities primarily through interviews with non-dental primary care practitioners who lived and worked in these communities then subsequently, the dental practitioners who had previously worked in some of the communities sampled. The conceptual framework (discussed in section 2 of this report) proposed a relationship between primary care providers, the rural resident (patient or client) and dental services, with the proposition that stronger connections between these elements, and especially stronger connections between resident primary care providers and non-resident dental practitioners and oral health services could contribute to community oral health gains. The results suggest that some of these links and connections were often tenuous and at some study sites, non-existent, this is represented by the broken lines in Figure 3.

The conceptual framework allows the strategies to improve oral health care suggested by primary care participants to be grouped and aligned (see the boxed areas of Figure 3). The results of this project support a multi-faceted approach to improve oral health and one that requires the establishment and maintenance of the lines of communication between stakeholders.

## Conclusions

Rural oral health could be improved by a multi-strategy approach including capacity building for non-dental care providers, providing better oral health promotion and prevention, better service delivery for both public and private patients and having better communication and referral pathways between rural primary and visiting/regional dental care providers. The policy options identified by this study are detailed below.

## POLICY OPTIONS

### Oral health promotion

- > Upstream, preventive strategies were seen as critical to improving the oral health status of rural communities and the most effective way to reduce problem presentations downstream. Participants emphasised the importance of educating people from an early age in schools and the community about preventative oral health and the importance of 'regular check-ups'. Prevention is a cornerstone to better oral health and could be facilitated through the delivery of regular oral health promotion programs in schools, reinforcement of good oral hygiene practices by parents and supported by fluoridation of town (or tank) water supplies.
- > Primary care providers could play a critical role in providing a higher level of oral health screening and surveillance and education through their regular interactions with patients.
- > Ensure that the community knows how and where to access oral health information

### Develop alternative oral health service delivery models, such as ...

- > A mixed public/private funding model that enables dentists to provide services to both public and private patients in smaller communities. Both public and private visiting oral health services were regarded as valuable for the community. A strategy suggested by several participants was to have a resident or visiting dentist/dental practitioner who could serve both public and private patients. This model was described as "half public and half private". In one community studied (where the population was too low for a viable private dental practice) visiting dental services were free for both public and private patients. This service was perceived as a success and as meeting most of the dental needs of the community.
- > Establishing on-site dental clinics (where population size justifies) in those communities not serviced by a private dental practice. These could be maintained and serviced by a resident dental practitioner (an Oral Health Therapist for example) who would have clinical, liaison and oral health promotion roles, and in supporting regular visits by both public and private dentists.

### Building the capacity of rural primary care providers through oral health education and training

- > Encourage rural primary care providers to participate in regular short workshops for practical skills, training in dental emergencies, undertaking training modules and accessing practice guidelines such as those available through the Royal Australian College of General Practitioners, Australian College of Rural and Remote Medicine and the Royal Flying Doctor Service. These could be used as part of the induction process for GPs and other primary care providers working in more isolated practice settings.
- > Provide more oral health education and training to non-dental health care students during their undergraduate training.



### Overcoming barriers that limit availability of dental services

- > Where there is not a resident dentist, increase the number of regular visiting dental services to rural and remote communities.
- > Provide greater mentorship and other support to new graduates who locate and practice in more remote communities where such infrastructure support is lacking.
- > Provide new dental graduates with a 'rural/remote' rotation as part of their graduate year (or first year of metropolitan employment). This could be facilitated in both the public and private sectors.
- > Greater use of tele-dentistry to connect the primary care providers with a dentist located elsewhere
- > Develop a 'transition to retirement' scheme for metropolitan-based dentists who plan to cease work but who would like to 'give back' to the community through the provision of dental services to rural communities on a part-time or locum basis.
- > Providing affordable travel options for those patients who have to travel long distances to visit a dentist.

### Improving communication between primary care providers and dental practitioners

- > Initiate and support regular face to face meetings between visiting/regional dental practitioners and rural/local primary care providers
- > Circulating the timetables of the visiting dental practitioners to the community primary care providers prior to their visits
- > Making the contact details of the nearby dental clinics available to primary care providers
- > Ensuring that dental practitioners provide feedback on the patients referred to them by primary care practitioners.

## STRENGTHS AND LIMITATIONS OF THE STUDY

This study included a diverse sample of communities and a relatively large number and range of primary care provider participants across the three states. The results represent the 'real world' experiences and views of health care professionals about oral health and the provision of oral health services in their communities. It is one of only a few qualitative studies to include a wide range and large number of health professionals working in rural areas to explore strategies to improve oral health at a community level. A methodological strength of the study was that these views were triangulated by drawing on findings from the research literature and, importantly, through interviews with the dental practitioners who had previously serviced the communities studied. The study has provided new knowledge and insights on the communication and referral pathways (or lack thereof) between primary and dental care providers, the barriers rural patients face to access dental care and has provided a detailed set of strategies to improve rural oral health from the perspective of the rural primary care providers and also from dental practitioners who had previously provided care to residents of the communities sampled. It has also confirmed, not surprisingly, that the Chief Dental Officers approached to identify communities in their state that met the study inclusion criteria, had a very good knowledge of those rural and remote communities in which oral health was poor. Two papers were published that disseminated the results of this project to a wider audience (Appendices 6 and 7).

Although data saturation was achieved, this does not mean that all issues were unearthed as this might differ in other settings. Also, the fact that 30% of primary care practitioners interviewed had worked in their communities for less than a year could indicate that their lack of local experience may have affected their answers to some questions, including those

about communicating with the dental team. However, their responses were consistent with those of participants who had worked in their communities for longer periods, which suggested that this was a common problem, regardless of time spent working in the current location.

A limitation of the study was that primary health care providers from Aboriginal Health Centers, whilst included, were not specifically targeted and recruited to the study. The oral health of the Aboriginal and Torres Strait Islander population requires a much more detailed examination than was either possible or was within the scope of this study.

We also recommend that investigations be undertaken around the 'patient journey' in relation to maintaining oral health and accessing oral health services from rural and remote areas. This could suggest additional strategies that could be implemented, possibly different to those highlighted by the health care professionals sampled in the current study.

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# Appendices

## APPENDIX 1: PAPER 1

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### Utilisation of oral health services provided by non-dental health practitioners in developed countries: a review of the literature

T. Barnett<sup>1</sup>, Ha Hoang<sup>1</sup>, J. Stuart<sup>1</sup>, L. Crocombe<sup>1,2</sup> and E. Bell<sup>3</sup>

<sup>1</sup>Centre of Research Excellence in Primary Oral Health, Centre for Rural Health, School of Health Sciences, University of Tasmania, Launceston, Tasmania, Australia; <sup>2</sup>Australian Research Centre for Population Oral Health, School of Dentistry, University of Adelaide, Adelaide, Australia; <sup>3</sup>Wicking Dementia Research and Education Centre, University of Tasmania, Hobart, Australia

**Objective:** People who have limited access to dental care may present to non-dental health practitioners for dental treatment and advice. This review synthesised the available evidence regarding the use of non-dental health practitioners for oral health problems and the services provided by non-dental health practitioners to manage such presentations. **Methods:** PubMed and CINAHL databases were searched using key search terms to identify all relevant quantitative and qualitative English-language studies published between 1990 and March 2014. Snowballing techniques were then applied whereby the reference lists of retrieved articles were searched for other relevant citations. Grey literature was searched via Google using the same search terms to identify unpublished work and government reports. **Results:** Of the 43 papers which met the review criteria, 25 papers reported on the use of non-dental health practitioners for oral health problems and 18 on dental care education and training for non-dental health practitioners. Four reports were located from the grey literature on the involvement of non-dental health practitioners in the management of oral health care. **Conclusions:** The review of literature showed that both children and adults utilise non-dental health practitioners for oral health problems. Despite this, Emergency Department medical staff, medical practitioners and pharmacists generally lacked training and knowledge in the management of oral health. Services from non-dental health practitioners mainly focussed on children. The literature on education and training for non-dental health practitioners was limited.

**Key words:** review, non-dental health practitioners, services, training, education, rural and remote, dental health, health outcomes research, allied health, aboriginal health workers, indigenous health workers

#### Introduction

Despite a growing awareness of the need for better integration between medicine and dentistry, these two disciplines have existed independently and have different training systems. A person with a dental health problem is expected to see a dental practitioner for treatment or advice. However, patients who lack access to dental services may seek dental care from non-dental health practitioners. They may present to hospital emergency departments (EDs) (Cohen *et al.*, 2002; 2008; 2011), medical practices (Britt *et al.*, 2000; Cohen *et al.*, 2008; 2011; NACDH, 2012) and pharmacists (Cohen *et al.*, 2009b; Pau *et al.*, 2000) for treatment or advice regarding their dental problems. Although these non-dental service settings are an important source of care for people with oral health problems, non-dental health practitioners only provide temporary relief of pain and do not provide definitive treatment (Cohen *et al.*, 2008; 2011). This may represent an inappropriate use of medical services where patients see a non-dental health practitioner for oral health problems that are best managed by or referred to an oral health practitioner (AHMC, 2004). People who delay or who are unable to access treatment can contribute to potentially preventable hospitalisations (PPHs) as they may be admitted to hospital to treat serious infections due to their dental condition. For example, in Australia during 2010–2011, dental conditions accounted for nearly

60,590 avoidable hospital admissions (AIHW, 2012). As a consequence, there are strong imperatives to investigate ways in which better oral health services can be provided in realistic and cost effective ways to those who lack access to dental services.

The aim of this review was to identify and synthesise the available evidence regarding the use of non-dental health practitioners in the provision of services for people who present with dental problems and to propose areas that may warrant further investigation and evaluation.

#### Methods

In this review, two main questions were asked:

1. What evidence is there for the use of non-dental practitioners in the provision of oral health advice/services?
2. What services do non-dental health practitioners provide in the management of dental problems?

The PubMed and CINAHL databases were searched using selected key search terms to identify all relevant quantitative and qualitative English-language studies published between 1990 and March 2014. Snowballing techniques were then applied whereby the reference lists of retrieved articles were searched for other relevant citations. Grey literature was searched via Google using the

Correspondence to: Dr Ha Hoang, Centre of Research Excellence in Primary Oral health, Centre for Rural Health, School of Health Sciences, University of Tasmania, Locked Bag 1372, Launceston, Tasmania 7250, Australia. Email: Thi.Hoang@utas.edu.au

## APPENDIX 2: RESULTS TABLE 1

Town	Population	Nearest Dental Surgery	Visiting Dental Service	ASGC - RA
1	<500	248km	Public dentist: once every 3 months; school dental van: sporadic visits	RA5
2	<1000	70km	No visiting oral health services	RA4
3	<1000	40km	School dental van: sporadic visits	RA3
4	<1000	87km	Private dentist: once a month	RA4
5	<1000	179km	Public dentist: once a year	RA5
6	<1000	210km	Private and public dentist visits: once every 3 months; mobile Aboriginal dental van: once a year; school dental van: sporadic visits	RA5
7	<1000	43km	No visiting oral health services	RA4
8	<1000	40km	No visiting oral health services	RA3
9	<1500	214km	Private dentist: once a month for 3 days; school dental van: sporadic visits	RA4
10	<1500	212km	Public and private dentists: sporadic visits	RA5
11	<1500	200km	Private dentist visits: once a month; school dental van: sporadic visits	RA5
12	<2000	62km	Private dentist visits: once a year	RA3
13	<3000	196km	Public dentist visits: once a month; mobile Aboriginal van: once a year	RA4
14	<1500	80km	QCoal truck* twice a year; school dental service and public dentist a few weeks a year	RA4

*Table 1: Characteristics of the communities included in the study.*

\* This is a partnership between the Queensland Coal Group (a mining company) and the Royal Flying Doctor Service (RFDS) to provide a mobile dental clinic to towns in regional Queensland. The QCoal Community Dental Service is staffed by RFDS dentists and dental assistants and offers a range of dental services. At the time of this study, all treatments are free to any patient with a Medicare Card, with no out of pocket expenses for patients with private health insurance (<http://www.rfdsqldservices.com.au/oral-health>).

## APPENDIX 3: RESULTS TABLE 2.

Table 2: Characteristics of the primary care provider participants.

Participant Characteristics	Number (n=105)	Percentage (%)
<b>Gender</b>		
Female	74	70.5
Male	31	29.5
<b>Age (years)</b>		
≤40	55	52.4
>40	50	47.6
<b>Primary care occupation</b>		
Speech therapist	1	1.0
Allied Health Worker	3	2.9
Aboriginal Health Worker	3	2.9
Child Health Nurse/Nurse	21	20.0
Director of Nursing (DoN)	12	11.4
General Practitioner (GP)	30	28.6
Pharmacist	19	18.1
Practice manager	9	8.6
Receptionist	7	6.7
<b>Years in current practice</b>		
<1 month	7	6.7
1-12 months	25	23.8
>1-5 years	43	41.0
>5 years	30	28.6
<b>Location (State)</b>		
Queensland	57	54.3
South Australia	24	22.9
Tasmania	24	22.9



## APPENDIX 4: RESULTS TABLE 3

*Table 3. Characteristics of the dental care provider participants.*

<b>Participant Characteristics</b>	<b>Number (n=12)</b>	<b>Percentage (%)</b>
<b>Gender</b>		
Female	5	41.7
Male	7	58.3
<b>Age (years)</b>		
≤40	2	16.7
>40	10	83.3
<b>Mean number of years in current practice (range)</b>	5.2 (0.25-20)	
<b>Dental occupation</b>		
Dentist	8	66.7
Dental therapist	1	8.3
Dental assistant	2	16.7
Practice manager	1	8.3

## APPENDIX 5: RESULTS TABLE 4

*Table 4: Common themes and subthemes derived from the interview data.*

Themes	Subthemes (number of responses)
The current state of rural oral health	<ul style="list-style-type: none"> <li>&gt; Access for adults (44)</li> <li>&gt; Access for children (24)</li> <li>&gt; Presentations to primary care providers (91)</li> </ul>
Oral health promotion	<ul style="list-style-type: none"> <li>&gt; Oral health education (43)</li> <li>&gt; Fluoride in water (19)</li> </ul>
Service delivery models	<ul style="list-style-type: none"> <li>&gt; Public-private mix model (26)</li> <li>&gt; Visiting oral health services (59)</li> </ul>
Managing oral health presentations	<ul style="list-style-type: none"> <li>&gt; Provision of advice and treatment (91)</li> <li>&gt; Level of confidence in providing oral health advice (88)</li> <li>&gt; Capacity building (73)</li> </ul>
Barriers to accessing oral health services	<ul style="list-style-type: none"> <li>&gt; Affordability (38)</li> <li>&gt; Travel related issues (42)</li> <li>&gt; Not seen as a priority (31)</li> </ul>
Communication between primary and dental care teams	<ul style="list-style-type: none"> <li>&gt; Awareness of dental services (45)</li> <li>&gt; Co-ordination (62)</li> <li>&gt; Referral pathways (67)</li> </ul>

# BMJ Open Non-dental primary care providers' views on challenges in providing oral health services and strategies to improve oral health in Australian rural and remote communities: a qualitative study

Tony Barnett,<sup>1</sup> Ha Hoang,<sup>1</sup> Jackie Stuart,<sup>1</sup> Len Crocombe<sup>1,2</sup>

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<sup>1</sup>Centre of Research Excellence in Primary Oral Health Care, Centre for Rural Health, School of Health Sciences, University of Tasmania, Launceston, Tasmania, Australia

<sup>2</sup>Australian Research Centre for Population Oral Health, School of Dentistry, University of Adelaide, Adelaide, South Australia, Australia

**Correspondence to**  
Dr Ha Hoang;  
[Thi.Hoang@utas.edu.au](mailto:Thi.Hoang@utas.edu.au)

## ABSTRACT

**Objectives:** To investigate the challenges of providing oral health advice/treatment as experienced by non-dental primary care providers in rural and remote areas with no resident dentist, and their views on ways in which oral health and oral health services could be improved for their communities.

**Design:** Qualitative study with semistructured interviews and thematic analysis.

**Setting:** Four remote communities in outback Queensland, Australia.

**Participants:** 35 primary care providers who had experience in providing oral health advice to patients and four dental care providers who had provided oral health services to patients from the four communities.

**Results:** In the absence of a resident dentist, rural and remote residents did present to non-dental primary care providers with oral health problems such as toothache, abscess, oral/gum infection and sore mouth for treatment and advice. Themes emerged from the interview data around communication challenges and strategies to improve oral health. Although, non-dental care providers commonly advised patients to see a dentist, they rarely communicated with the dentist in the nearest regional town. Participants proposed that oral health could be improved by: enabling access to dental practitioners, educating communities on preventive oral healthcare, and building the skills and knowledge base of non-dental primary care providers in the field of oral health.

**Conclusions:** Prevention is a cornerstone to better oral health in rural and remote communities as well as in more urbanised communities. Strategies to improve the provision of dental services by either visiting or resident dental practitioners should include scope to provide community-based oral health promotion activities, and to engage more closely with other primary care service providers in these small communities.

## INTRODUCTION

In Australia, around one-third of the population resides in rural and remote areas. Residents in these areas have poorer health

## Strengths and limitations of this study

- The use of qualitative methods provided opportunities to explore the challenges of providing oral health advice as experienced by non-dental primary care providers.
- This is the first qualitative study to include a wide range of health professionals working in rural areas and explore their views on strategies to improve oral health in rural areas.
- While our findings are limited to data obtained from interested participants who worked in mainstream healthcare facilities in only four communities in one state of Australia, a strength of the study was that these views were triangulated by interviews with dental practitioners who had visited these communities or were from surrounding towns.

outcomes and less access to healthcare services than the people living in major cities.<sup>1</sup> Both Aboriginal and non-indigenous people are also at risk of poorer oral health outcomes<sup>2</sup>, experience higher rates of dental caries than their city counterparts<sup>3</sup> and therefore, are more likely to present to dentists for problems, such as pain, than residents of major cities.<sup>4</sup> There is no single factor that completely explains this; however, access to dental services is a key factor. Australia has a maldistribution of dental practitioners.<sup>5 6</sup> There are more than three times as many dentists practising per 100 000 population in major cities (59.5) than in remote/very remote areas (17.9).<sup>5</sup> The proportions of other types of dental practitioners, including dental therapists and prosthetists, are also the lowest in remote/very remote areas.<sup>5</sup>

Towns in many rural and remote areas in Australia are often widely dispersed and lack the population base to warrant a full-time

## “Sorry, I’m not a dentist”: perspectives of rural GPs on oral health in the bush

Australians living in rural areas have poorer oral health than city residents.<sup>1</sup> They experience higher rates of dental caries<sup>2</sup> and are more likely than people in city areas to visit dentists for problems other than check-ups.<sup>3</sup> Complicating this situation is the inadequate availability of dental care services in rural areas because of the uneven distribution of dental practitioners across Australia; most dentists and other dental practitioners practise in city areas.<sup>4,5</sup> Many small rural towns in Australia do not have the population to support a full-time or resident dentist. Dental services in Australia are largely provided by the private sector (85%);<sup>6</sup> public oral health services are provided only for those under 18 years of age and for adults who hold health care concession cards.<sup>7</sup>

People on low incomes who cannot regularly access dental care and who do not have private insurance are more likely to present to general medical practices and hospital emergency departments with oral health problems for immediate treatment and referral.<sup>8–13</sup> It is concerning that dental conditions accounted for 63 000 avoidable hospital admissions in Australia during 2012–13.<sup>14</sup> The admission rates for these conditions were lowest among city residents (2.6 admissions per 1000 population) and highest for very remote residents (3.7 per 1000),<sup>15</sup> although the rates in each category vary between jurisdictions.<sup>16</sup>

When dental services are not available in remote areas, people visit non-dental health providers, including medical staff, for dental care.<sup>12</sup> Although rural general practitioners see patients with dental health problems, there has been limited research into their views about oral health. Our study investigated how rural GPs manage presentations by patients with oral health problems, and their perspectives on strategies to improve oral health in rural areas.

### Abstract

**Objective:** To examine the provision of oral health and oral health service in rural areas from the perspective of general practitioners working in communities without resident dentists.

**Design, setting and participants:** A qualitative approach using face-to-face, semi-structured interviews with 30 GPs from rural Queensland, Tasmania and South Australia, conducted between October 2013 and October 2014.

**Results:** Four major themes emerged from the interviews: rural oral health, managing oral health presentations, barriers to patients seeing a dentist, and improving oral health. Rural GPs saw patients with a range of oral health problems, including toothache, abscesses and trauma, and observed poor oral health in their communities. Some acknowledged that they were not confident when dealing with oral health problems; they typically provided short-term pain relief, prescriptions for antibiotics, and advised patients to see a dentist. Participants noted that rural patients may not see a dentist when advised to do so because symptoms had abated, oral health was regarded as a low priority, or the costs of travelling to and seeing a dentist discouraged them. The interviewees recommended building the capacity of GPs to better care for patients with oral health problems, establishing more effective communication and referral pathways between GPs and dentists, focusing on preventive dental care, and delivering dental services in more flexible and consistent ways that better meet the needs of the communities.

**Conclusions:** Rural oral health could be improved by several approaches, including additional training for GPs in oral health care, primary prevention activities in communities, and improving the access to dental services.

### Methods

This study forms part of a broader oral health rural workforce research project that is investigating the relationship between dental practitioners and primary care networks. The chief dental officers of Tasmania, Queensland and South Australia were invited to identify rural and remote communities in which oral health care was a significant problem, and where there was at least one general medical practice, a health care facility and a pharmacy, but no resident dentist. Primary care providers in selected communities who had experience in advising patients with oral health problems were invited to participate in semi-structured interviews. Participants were recruited using both purposive and snowball sampling strategies.<sup>17</sup>

The interview guide was developed on the basis of our review of the

relevant literature, and included questions about each participant's professional background; the frequency and management of oral health presentations, and the level of confidence with which the practitioners managed these patients; and their views on strategies that could improve rural oral health. The interviews were conducted in the participants' workplaces by one or more members of the research team between October 2013 and October 2014. Recruitment continued until data saturation<sup>18</sup> was attained in the concurrent data analyses. Interviews were audio-recorded and later transcribed.

Interview data were subjected to thematic analysis.<sup>19</sup> NVivo version 10.0 (QSR International) was used to organise transcripts and codes. All transcripts were verified against audio recordings by two members of the research team, and interview data

Tony Barnett  
PhD

Ha Hoang  
PhD

Jackie Stuart  
BDS

Leonard Crocombe  
BDS, MBA, PhD

Centre for Rural Health,  
University of Tasmania,  
Launceston, TAS.

Thi.Hoang@utas.edu.au

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